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ABSTRACT

Stylistic analysis by both rhetoricians and literary critics is incomplete, often subjective, impressionistic, and sometimes misleading. The ideal method is objective analysis, based on adequate verbal samples, which identifies and describes the style of any writer or speaker as distinctive to that person alone. In order to do this, the theories and methods of linguistics must be applied through the use of computers. A couple of efforts in computer stylistics demonstrate the advantages of computerized data analysis for responsibility to the texts and the complex properties of language. Humanists must become acclimated to this use of technology through recognition of outstanding computer-assisted stylistic studies and through courses in the computer languages widely used in humanistic applications. (JM)

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That "Marvelous Machine" and Stylistic Analysis

Dorothy Margaret Guinn

Individual style, style in general, the effect of style, what is style?, how do we define style?, is there such a thing as style? As these representative statements and questions culled from various books and essays on style indicate, how we talk about style, one of the major canons of rhetoric and one of the most fascinating aspects of literary study--at least for me--is not a new problem, but one under continuing debate.

Rhetoricians talk about style in terms of audience, purpose, type of discourse, occasion, and, until a few decades ago, treated it dualistically as the verbaldress of thought. Literary critics talk about style in terms of the literary object itself, for the most part monistically as inseparable from content. But in either case, as Virginia Tufte observes in her book Grammar as Style, "most talk about style, by professional critics as well as amateurs, leaves much to be desired: it is often subjective, impressionistic, unhelpful, sometimes misleading."[1] The soundest method is objective analysis that identifies and describes the style of any writer or speaker, to borrow from Young, Becker, and Pike, and tagmemic theory, as an isolated entity, as a changing process, and as it relates to the styles of other writers or speakers. In other words, the ideal method should, based on adequate verbal samples, specify an individual's verbal print that marks him as unmistakably as his voice print or fingerprint.

Instead, we often read purported descriptions of style that are at bottom simply critics' reactions to style. Impressionistic labels abound, such as blowing, realistic, romantic, simple, supple as applied to Stephen

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Crane's style, which I have recently become interested in describing. Such labels, besides being contradictory at times, simply do not tell us very much.

Besides this epithet approach to style, we also encounter critics who seek the man in his literary style, predicating a one-to-one correspondence between a man's personality as a whole and his literary style as a whole. Psychologists do suggest an objective basis for this assumption. For example, Jacques Lacan in a recent article discusses the possible specific relationship between a person's emotional structure and his use of certain rhetorical figures.[2] This notion of a mapping relation between personality and written style may prove to be a method of explaining the aesthetic effect of literature in psychological terms, but at present we know too little about man's psyche and his verbal style and the reader's response to style to do more than conjecture about the aesthetic effect of style.

For most of the history of rhetorical theory, style has been thought of as ornament. Although the Greek word for style is lexis, which incorporates a triune meaning--thought, word, speaking--and Aristotle expected stylistic devices such as metaphor to clearly convey the thought as well as add charm and distinction, the notion that style is the dress of thought predominates. Separating form from content, Aristotle admonishes the student of rhetoric: "it is not enough to know what to say--one must also know how to say it."[3] Styles in this tradition became classified as grand, middle, and plain to accompany the modes of discourse: deliberative, expository, argumentative, and the like, and one was to choose appropriate figures of speech and thought to achieve the desired style. The implication is that style is determined by external features such as type of discourse rather than the individual writing or speaking.

In the literary world, the organicist school of stylistic analysis, which treats style as inseparable from content, and, indeed, largely as content, has virtually routed all other theoretical contenders. We can trace this notion of style to Thomas Sprat (if not even further to Francis Bacon) in the seventeenth century, who, in his History of the Royal Society commanded "so many things, almost in an equal number of words."[4] His recent descendant, W. K. Wimsatt, sums up the current organicist school's position when he says that looking at style in any other way except as meaning "is as if, when all is said for meaning, there remains an irreducible something that is superficial, a kind of scum--which /is called/ style."[5] For the organicists, every statement is a unique style; any change at all, even the shifting of an adverb, changes meaning.

Stylistic analysis under the organicist method most often observes how the style of a piece, primarily seen as word choice and imagery, is accommodated to theme and content. For example, in the Crane critical canon, James B. Colvert argues that "the burden of meaning in /Crane's/ fiction is carried . . . by style,"[6] citing among other examples the images of threatening waves and pointed rocks in "The Open Boat" as suggesting Crane's perception of irreconcilable contradictions in reality.

But, as Louis T. Milic points out, vocabulary and diction are relatively unstable aspects of style, for "vocabulary is strongly affected by the type and subject matter of a piece of writing. Two sermons by different writers may have more words in common than a sermon and a romance by the same writer."[7] That is, to return to the discussion of Crane's work just mentioned, in a story of men shipwrecked in a small dinghy, one is bound to encounter threatening waves and pointed rocks, no matter who writes the story.

This is not to say that illuminating exegesis of content does not have its value, nor that critical studies always inaccurately make statements about style, but most literary critics discuss literature with no reference to language or with reference to only the semantic, nonsystematic aspects of language. Nor do I want to imply that examining style from the rhetorician's viewpoint as calculated choices keyed to subject matter, occasion, purpose, and audience is not important, but that grammatical, syntactic, often unconscious choices are even more important to a description of style. As Milic says, a writer in his syntax is

> expressing himself more fully than in his vocabulary. Can it be because he does not realize that he is doing so, blinded as he is by the overwhelming semantic luster of the words?. . . . However interesting the study of vocabulary may be for other uses. . .in eliciting the personal, unconscious style, it must be set aside in favor of grammar.[8]

Modern linguistic theory, muddy and contentious though the field is at present, offers us some key concepts for examining grammatical style. One concept is that there are two kinds of meaning, structural and semantic, and that they are separable. To take Noam Chomsky's famous example, "Colorless green ideas sleep furiously" is grammatical but meaningless for all intents and purposes. On the other hand, "You open door the" is ungrammatical, but we can discern its meaning with only slight hesitation. This latter example points to a second key notion, that of linguistic choice. Many elements in English do not allow choice. "You open door the" is an un-English arrangement. But with many elements we do have choice. We may say "John is going to the store and that annoys me," or "John's going to the store annoys me," or other possibilities. Where choice enters the picture, even though unconscious grammatical choice, we have style.

Another linguistic concept is the fundamental distinction between competence and performance. Noam Chomsky distinguishes competence, the ideal

speaker-hearer's knowledge of his language, from performance, which is a speaker-hearer's actual use of language in real life situations.[9] We can diagram this notion as applied to style:

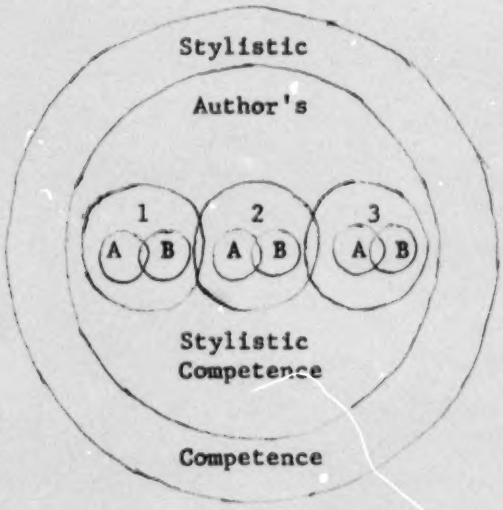

Diagram 1.

We may say that the outer circle represents ideal stylistic competence--all possible stylistic choices allowed by the language; the next circle represents a particular author's stylistic competence--his particular choices; the inner circles 1, 2, 3 represent a particular author's stylistic performance at different stages in his career, further complicated by contextual characteristics (e.g., genre) as represented by circles A,B. Some writers, of course, may not change their style through time to any significant degree, nor write in more than one genre. Other writers may reveal numerous significant stages and write in several genres. Theoretically, it should be possible to formulate a system of rules that would generate a writer's style, using his performance, that is, his literary works, to account for his stylistic competence.

In any case, though, objective examination of literary works, the writer's performance, precedes any discussion of his competence. To illustrate

what even a cursory objective analysis can reveal, let us examine some stylistically measurable features in three selections from Crane's work. All are descriptive passages from his prose fiction, the first written in spring 1892, the second four years later, the third two years after the second.

1. The sun gleamed merrily upon the waters, the gaunt, towering tree-trunks and the stumps lying like spatters of wood which had dropped from the clouds. Troops of blue and silver darning-needles danced over the surface. Bees bustled about the weeds which grew in the shallow places. Butterflies flickered in the air. Down in the water, millions of fern branches quavered and hid mysteries. The four men sat still and 'skiddered.' The individual puffed tremendously. Ever and anon, one of the four would cry ecstatically or swear madly. His fellows, upon standing to gaze at him would either find him holding a stout fish, or nervously struggling with a hook and line entangled in the hordes of vindictive weeds and sticks on the bottom. They had fortune, for the pickeral is a voracious fish. His only faults are in method. He has a habit of furiously charging the fleeting bit of glitter and then darting under a log or around a corner with it.

"The Octopush," Sullivan County Sketches, published July 10, 1892.

2. Dark mesquit spread from horizon to horizon. There was no house or horseman from which a mind could evolve a city or a crowd. The world was declared to be a desert and unpeopled. Sometimes, however, on days when no heat-mist arose, a blue shape, dim, of the substance of a specter's veil, appeared in the southwest, and a pondering sheep-herder might remember that there were mountains.

In the silence of these plains the sudden and childish banging of a tin pan could have made an iron-nerved man leap into the air. The sky was ever flawless; the manoeuvering of clouds was an unknown pageant; but at times a sheep-herder could see, miles away, the long, white streamers of dust rising from the feet of another's flock, and the interest became intense.

"A Man and Some Others," published February, 1897.

3. The battalion moved out into the mud and began a leisurely march in the damp shade of the trees. The advance of two batteries had churned the black soil into a formidable paste. The brown leggings of the men, stained with the mud of other days, took on a deeper color. Perspiration broke gently out on the reddish faces. With his heavy roll of blanket and the half of a shelter-tent crossing his right shoulder and under his left arm, each man presented the appearance

> of being clasped from behind, wrestler fashion, by a pair of thick white arms. There was something distinctive in the way they carried their rifles. There was the grace of an old hunter somewhere in it, the grace of a man whose rifle has become absolutely a part of himself. Furthermore, almost every blue shirt-sleeve was rolled to the elbow, disclosing fore-arms of almost incredible brawn. The rifles seemed light, almost fragile, in the hands that were at the end of these arms, never fat but always with rolling muscles and veins that seemed on the point of bursting. And another thing was the silence and the marvelous impassivity of the faces as the column made its slow way toward where the whole forest spluttered and fluttered with battle.
>
> "The Price of the Harness," published December, 1898.

One way to begin our analysis is by simply counting. Many stylistic studies refer to sentence length as a significant feature, but with the vagaries of punctuation what they are, particularly in prose written for aesthetic effect, the T-unit--any piece of discourse that can be punctuated as a sentence--offers a more valid measure. As Chart 1. below indicates, one feature of Crane's style is variation in number of words per T-unit. This stylistic device remains consistent in all the passages. However, another feature, average number of words per T-unit, varies, with each successive passage showing an increase. Such an increase can signify increasingly dense texture.

Passage	Number of Words	Number of Sentences	Number of T-Units per Sentence	Number of T-Units	Average Number Words per T-Unit	Variation in T-Unit Length
1	163	12	1.08	13	12.5	4-36 words
2	132	6	1.66	10	13.2	5-25 words
3	214	9	1.22	10	21.4	8-40 words

Chart 1.

As Francis Christensen[10] explains it in his generative rhetoric of the sentence, texture depends upon the number and variety of additions to a base clause (B). His classification of cumulative modifiers, that is, only those modifiers that are freely movable, into these categories--subordinate

clause (SC), relative clause (RC), noun cluster (NC), verb cluster (VC), adjective cluster (AC), adjective series (A+A), absolute (Abs), and prepositional phrase (PP), to which I have added adverb (Ad), adverb series (Ad+Ad), and adverb clause (AdC)--presents a useful method for profiling a writer's style. But the best way to present Christensen's method is by illustration. The Crane passages can be analyzed into their additions as follows:

1. (B) The sun gleamed
(Ad) merrily
(PP) upon the waters, the gaunt, towering tree-trunks and the stumps
(VC) lying like spatters of wood
(RC) which had dropped
(PP) from the clouds.

(B) Troops of blue and silver darning-needles danced
(PP) over the surface.

(B) Bees bustled about the weeds
(RC) which grew
(PP) in the shallow places.

(B) Butterflies flickered
(PP) in the air.

(PP) Down in the water,
(B) millions of fern branches quavered and hid mysteries.

(B) The four men sat still and 'skiddered.'

(B) The individual puffed
(Ad) tremendously.

(Ad+Ad) Ever and anon,
(B) one of the four would cry
(Ad) ecstatically
or swear
(Ad) madly.

(B) His fellows
(PP) upon standing to gaze at him
would either find him
(VC) holding a stout fish
or/ /struggling
(Ad) nervously
(PP) with a hook and line
(VC) entangled
(PP) in the hordes of vindictive weeds and sticks
(PP) on the bottom.

(B) They had fortune
(B) for the pickeral is a voracious fish.

(B) His only faults are in method.

(B) He has a habit of/ /charging the fleeting bit of glitter
(Ad) furiously

and then darting
(PP) with it
(PP) under a log
(PP) or around a corner.

2. (B) Dark mesquit spread
(PP) from horizon to horizon.

(B) There was no house or horseman
(RC) from which a mind could evolve a city or a crowd.

(B) The world was declared to be a desert and unpeopled.

(Ad) Sometimes,
(Ad) however,
(AdC) on days when no heat-mist arose
(B) a blue shape,/ /of the substance of a specter's veil appeared
(AC) dim,
(PP) in the southwest
(B) and a pondering sheep-herder might remember
(SC) that there were mountains.

(PP) In the silence of these plains
(B) the sudden and childish banging of a tin pan could have made an iron-nerved man leap into the air.

(B) The sky was/ /flawless;
(Ad) ever
(B) the maneouvering of clouds was an unknown pageant;
(B) but/ /a sheep-herder could see,/ /the long,
(Ad) at times (AC) miles away,
white streamers of dust
(VC) rising from the feet of another's flock,
(B) and the interest became intense.

3. (B) The battalion moved
(PP) out into the mud
(B) and began a leisurely march
(PP) in the damp shade of the trees.

(B) The advance of two batteries had churned the black soil
(PP) into a formidable paste.

(B) The brown leggings of the men,/ /took on a deeper color
(VC) stained with mud of other days,

(B) Perspiration broke/ /out
(Ad) gently
(PP) on the reddish faces.

(PP) With his heavy roll of blanket and the half of a shelter-tent
(VC) crossing his right shoulder and under his left arm,
(B) each man presented the appearance of being clasped
(PP) from behind,
(AC) wrestler fashion,
(PP) by a pair of thick white arms.

(B) There was something distinctive
(PP) in the way they carried their rifles.

(B) There was the grace of an old hunter
(Ad) somewhere
(PP) in it,
(NC) the grace of a man
(RC) whose rife has become/ /a part of himself.
(Ad) absolutely

(Ad) Furthermore,
(B) almost every blue shirt-sleeve was rolled
(PP) to the elbow,
(VC) disclosing fore-arms of almost incredible brawn.

(B) The rifles seemed light,
(AC) almost fragile,
(PP) in the hands
(RC) that were at the end of these arms,
(AC) never fat
(AC) but always with rolling muscles and veins
(RC) that seemed on the point of bursting.

(B) And another thing was the silence and the marvelous impassivity of the faces
(SC) as the column made its slow way toward where the whole forest spluttered and fluttered
(PP) with battle.

Chart 2. summarizes the additions in each passage:

Passage	Total No. Words	Total No. Additions	SC	RC	NC	VC	AC	A+A	Abs	PP	Ad	Ad+Ad	AdC
1	163	25	0	2	0	3	0	0	0	13	6	1	0
2	132	13	1	1	0	1	2	0	0	3	4	0	1
3	214	28	1	3	1	3	4	0	0	12	4	0	0

Chart 2.

We observe that while the total number of additions increases, yet not drastically, between passages one and three, two had comparatively few additions, suggesting

that Crane's style is characterized by a texture that thins before it densifies. The drop in passage two's additions, however, results from its fewer prepositional phrases. In contrast, Crane relies primarily on prepositional phrases to enrich texture in passages one and three. On the other hand, compared to passage one, two reveals a decided increase in types of modification. Passage three reveals the best of both worlds: a quantity of additions exceeding that of passage one, and a variety of additions matching that of passage two. We might, then, on the basis of this objective analysis, conclude that Crane's style does change with time and in the direction of complexity.

Are we brought to the point, then, where we could legitimately characterize Crane's style, its basic features, its manner of change, and even leap from description to evaluation or assessment of effect? No, certainly not. Because the samples are so limited, we cannot generalize about Crane's style, even restricting our comments to his prose fiction style, with justifiable confidence. Much more extensive analysis is needed, both of number of words and stylistic features examined. Although one might assume that an entire corpus would be needed to make accurate stylistic generalizations, quantitative studies of style have proven that samples of 30,000 to 40,000 words are equally predictive of style as larger samples. Even so, personal close analysis of 30,000 to 40,000 words boggles the mind, and, indeed, is impossible given our human limitations: lack of time and patience, boredom, inaccuracy.

However, mechanical minds, that is, computers, are marvelously suited to counting and correlating vast amounts of data, hence can assemble precise data upon which critics can base their judgments, occasionally confirming, often correcting past subjective characterizations of style. A pioneering

effort in computer stylistics was Louis T. Milic's quantitative analysis of Jonathan Swift's style, in which he concentrated on Swift's use of function words, particularly connectors, which form a fundamental aspect of his style.[11] Extrapolating from his quantitatively gathered facts, Milic argues that despite the semantic emptiness of most connectors, they lead to rhetorical persuasiveness rather than clarity. More recently, Dolores Burton has analyzed formal linguistic features in Shakespeare's "Richard II" and "Antony and Cleopatra" with two goals in mind: to describe distinct stages in Shakespeare's stylistic development and to formulate a theory of style and a method for applying that theory to literature.[12] Neither study, nor others equally intelligent and sensitive, could be as responsible to texts and the complex properties of language without resort to computerized data analysis.

But although computers are marvelous machines, they are not miracle workers. Most importantly, computers and their use can only support a perceptive, industrious critic, not supplant him. Accurate, computer generated concordances, key-word-in-context printouts, and grammatical parsing analyses can sensitize the critic to a writer's use of, say, a particular image or structure, but cannot tell the critic the why behind the usage. A text passing through the brain of a computer is nothing unless it has involved the brain of a scholar.

And, at times, the marvelous machine transforms into an infernal machine. The system crashes, terminal errors abound, thousands of words are erased in a second. Computers, like people, perform poorly when overburdened and occasionally refuse to work at all. Because of such problems, I cannot report today, as I had hoped, on the role played by syntax in Crane's style. I have also discovered that computer programming for the humanities, though improving, is less than a perfect art. In the case of grammatical parsing

of literary texts, the available Hawkeye program analyzes form and function of most of the words of a text but cannot cope with all structures, complex embeddings for example. And the program is based on structural grammar, not the latest transformational-generative theories, which present complexities not yet amenable to computer programming. However, one can always correct computer errors and resubmit data, and man-machine cooperation can solve the incomplete parsing problem. As for surface structural analysis, much of what we generally mean by style is a surface structure phenomenon, and a fully marked text, in any event, can serve as input to interpretation by any grammatical theory.

In any case, these and similar problems are not the greatest obstacles to computer use in the humanities. Humanists, a group certainly embracing rhetoricians and literary critics, fear the forbidden fruit (anything that smacks of scientism) and, ironically in terms of my metaphor, lack knowledge of what to do with it if grasped. Probably only long term acclimation to and recognition of outstanding computer assisted stylistic studies will push humanists over the first of these obstacles. The offering of courses in computer languages widely used in humanistic applications, allowing a computer language to substitute for advanced degree foreign language requirements, and encouraging scholars to become both "numerate" and "literate" can provide the leverage to clear the second obstacle.

In sum, I am arguing that in prizing and practicing subjective, intuitive assessments of style rather than explicitness in the smallest particulars and broad tendencies of stylistic features, neither rhetorical theorists nor literary theorists offer the best and most comprehensive way of looking at style. One must apply the theories and methods of linguistics and harness whatever technical wizardry is available to make hard statements about style.

As Edward Corbett says in his discussion of whether--not whitner--rhetoric goes in the future, "in our time, professional linguists and electronic computers have enlivened and enriched the study of style."[13] The question remains, though, whether rhetoricians and literary critics will invest such enrichment when they approach style itself and assess the affective domain of discourse, of which a key variable is style.

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Footnotes

1 Virginia Tufte, Grammar as Style (New York: Holt, Rinehart, and Winston, Inc., 1971), p. 2.

2 Jacques Lacan, "The Insistence of the Letter of the Unconscious," Yale French Studies 36-37 (1966), 112-147.

3 The Rhetoric of Aristotle, expanded trans. by Lane Cooper (New York: Appleton-Century-Crofts, 1932, 1960), p. 182.

4 Thomas Sprat, History of the Royal Society, ed. Jackson I. Cope and Harold W. Jones (St. Louis: Washington University Press, 1958), p. 113.

5 W. K. Wimsatt, "Style as Meaning," in Essays on the Language of Literature, ed. Seymour Chatman and Samuel R. Levin (New York: Houghton Mifflin Company, 1967), p. 362.

6 James B. Colvert, "Style and Meaning in Stephen Crane: The Open Boat," Texas University Studies in English (1958), 38-29.

7 Louis T. Milic, A Quantitative Approach to the Style of Jonathan Swift (The Hague: Mouton and Company, 1967), p. 138.

8 Ibid., p. 79.

9 Noam Chomsky, Aspects of the Theory of Syntax (Cambridge, Massachusetts: The M.I.T. Press, 1965), p. 4.

10 Francis Christensen, Notes Toward a New Rhetoric (New York: Harper & Row, Publishers, 1967), pp. 1-22.

11 Milic, Chapter V particularly.

12 Dolores Burton, Shakespeare's Grammatical Style (Austin: University Texas Press, 1973).

13 Edward P. J. Corbett, "Rhetoric, Whether Goest Thou?" in A Symposium in Rhetoric, ed. J. Dean Bishop et al. (Denton, Texas: Texas Woman's University Print Shop, 1975), p. 47.